FIG. 1

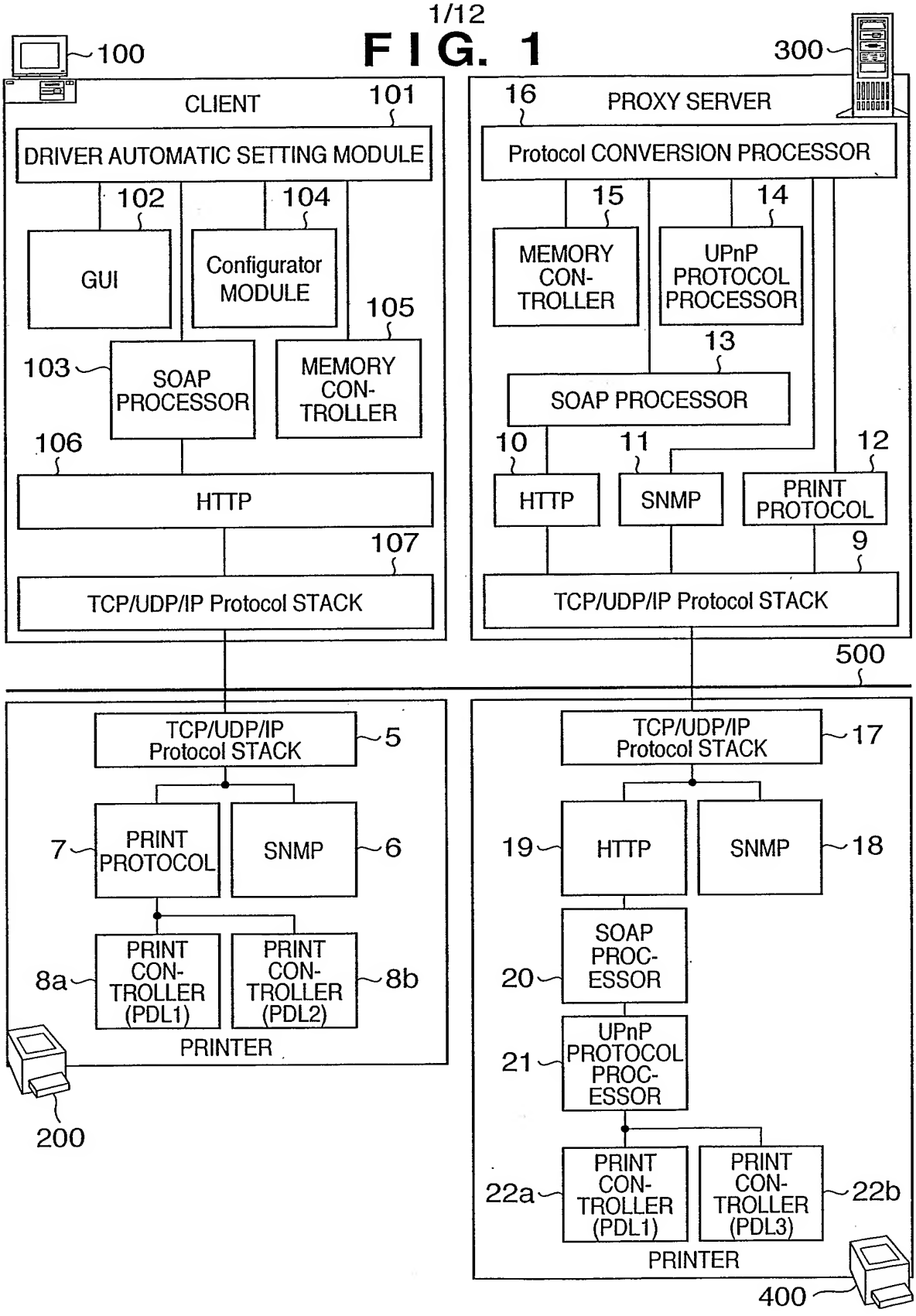

100
CLIENT
101
DRIVER AUTOMATIC SETTING MODULE
102
GUI
104
Configurator MODULE
105
103
SOAP PROCESSOR
MEMORY CON-TROLLER
106
HTTP
107
TCP/UDP/IP Protocol STACK
300
16
PROXY SERVER
Protocol CONVERSION PROCESSOR
15
14
MEMORY CON-TROLLER
UPnP PROTOCOL PROCESSOR
13
SOAP PROCESSOR
10
11
12
HTTP
SNMP
PRINT PROTOCOL
9
TCP/UDP/IP Protocol STACK
500
TCP/UDP/IP Protocol STACK
5
7
PRINT PROTOCOL
SNMP
6
8a
PRINT CON-TROLLER (PDL1)
PRINT CON-TROLLER (PDL2)
8b
PRINTER
200
TCP/UDP/IP Protocol STACK
17
19
HTTP
SNMP
18
20
SOAP PROC-ESSOR
21
UPnP PROTOCOL PROC-ESSOR
22a
PRINT CON-TROLLER (PDL1)
PRINT CON-TROLLER (PDL3)
22b
PRINTER
400

FIG. 2

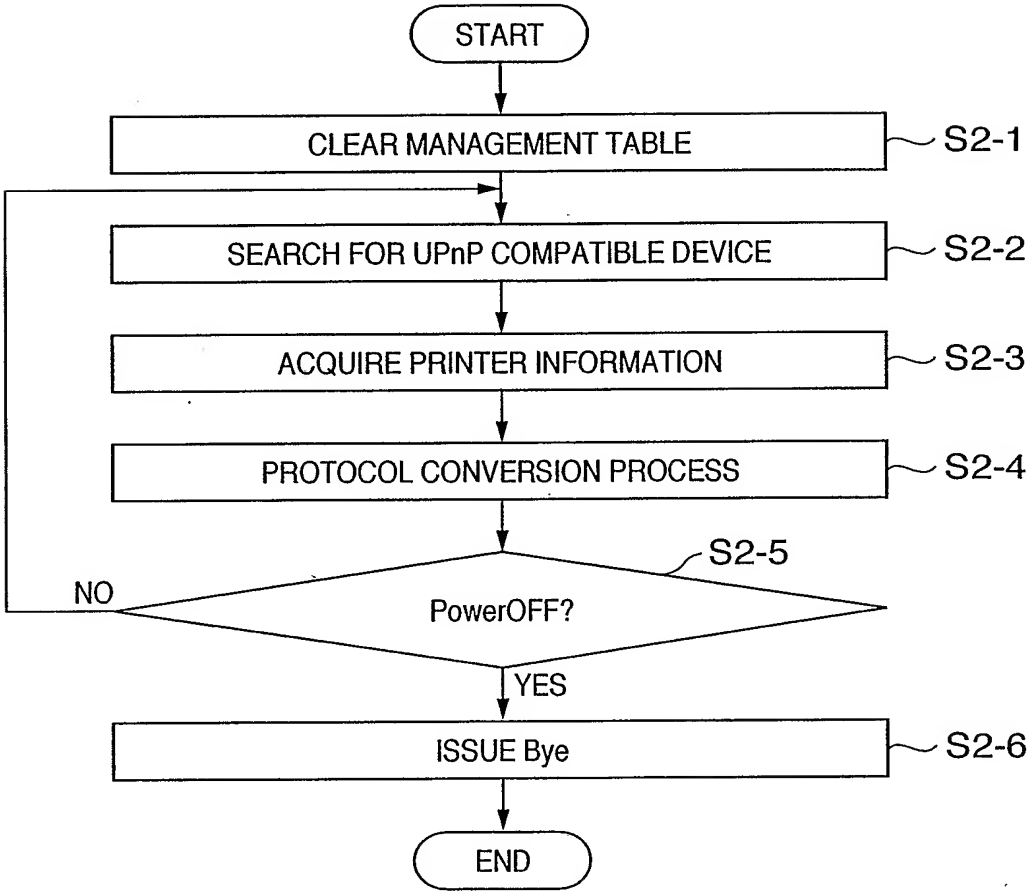

START
CLEAR MANAGEMENT TABLE
S2-1
SEARCH FOR UPnP COMPATIBLE DEVICE
S2-2
ACQUIRE PRINTER INFORMATION
S2-3
PROTOCOL CONVERSION PROCESS
S2-4
S2-5
NO
PowerOFF?
YES
ISSUE Bye
S2-6
END

FIG. 3

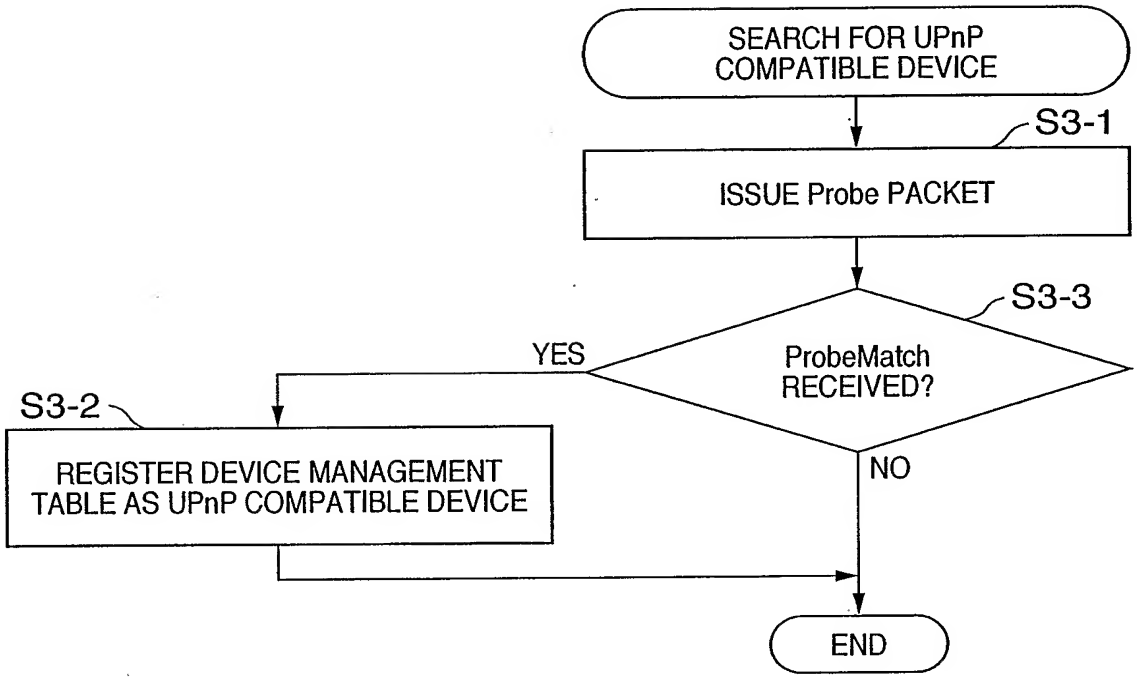

SEARCH FOR UPnP COMPATIBLE DEVICE
S3-1
ISSUE Probe PACKET
S3-3
ProbeMatch RECEIVED?
YES
NO
S3-2
REGISTER DEVICE MANAGEMENT TABLE AS UPnP COMPATIBLE DEVICE
END

FIG. 4

```
<Envelope>
  <Header>
    <Action>
      http://xxx/Probe
    </Action>
    <MessageID>
      uuid:0a6dc791-2be6-4991-9af1-454778a1917e
    <MessageID>
  </Header>
  <Body>
    <Probe>
      <Type>PrintBasic</Type>
    </Probe>
  </Body>
</Envelope>
```

FIG. 5

```
<Envelope>
 <Header>
  <Action>
   http://xxx/ProbeMatch
  </Action>
  <MessageID>
   uuid:e32e6863-ea5e-4ee4-997e-69539 d1ft2cf
  <MessageID>
  <RelatesTo>
   uuid:0a6dc791-2be6-4991-9af1-454778a1917e
  </RelatesTo>
 </Header>
 <Body>
  <ProbeMatch>
   <EndpointReference>
    <Address>
     uuid:98190dc2-0890-4ef8-ac9a-5940995e611a
    </Address>
    <Types>PrintBasicPrintAdvanced</Types>
   </EndpointReference>
  </ProbeMatch>
 </Body>
</Envelope>
```

ProbeMatch FOR 22a

```
<Envelope>
 <Header>
  <Action>
   http://xxx/ProbeMatch
  </Action>
  <MessageID>
   uuid:e32e6863-ea5e-4ee4-997e-69539 d1ft2cf
  <MessageID>
  <RelatesTo>
   uuid:0a6dc791-2be6-4991-9af1-454778a1917e
  </RelatesTo>
 </Header>
 <Body>
  <ProbeMatch>
   <EndpointReference>
    <Address>
     uuid:98190dc2-0890-4ef8-ac9a-5940995e611a
    </Address>
    <Types>PrintBasicPrintAdvanced</Types>
   </EndpointReference>
  </ProbeMatch>
 </Body>
</Envelope>
```

ProbeMatch FOR 22b

FIG. 6

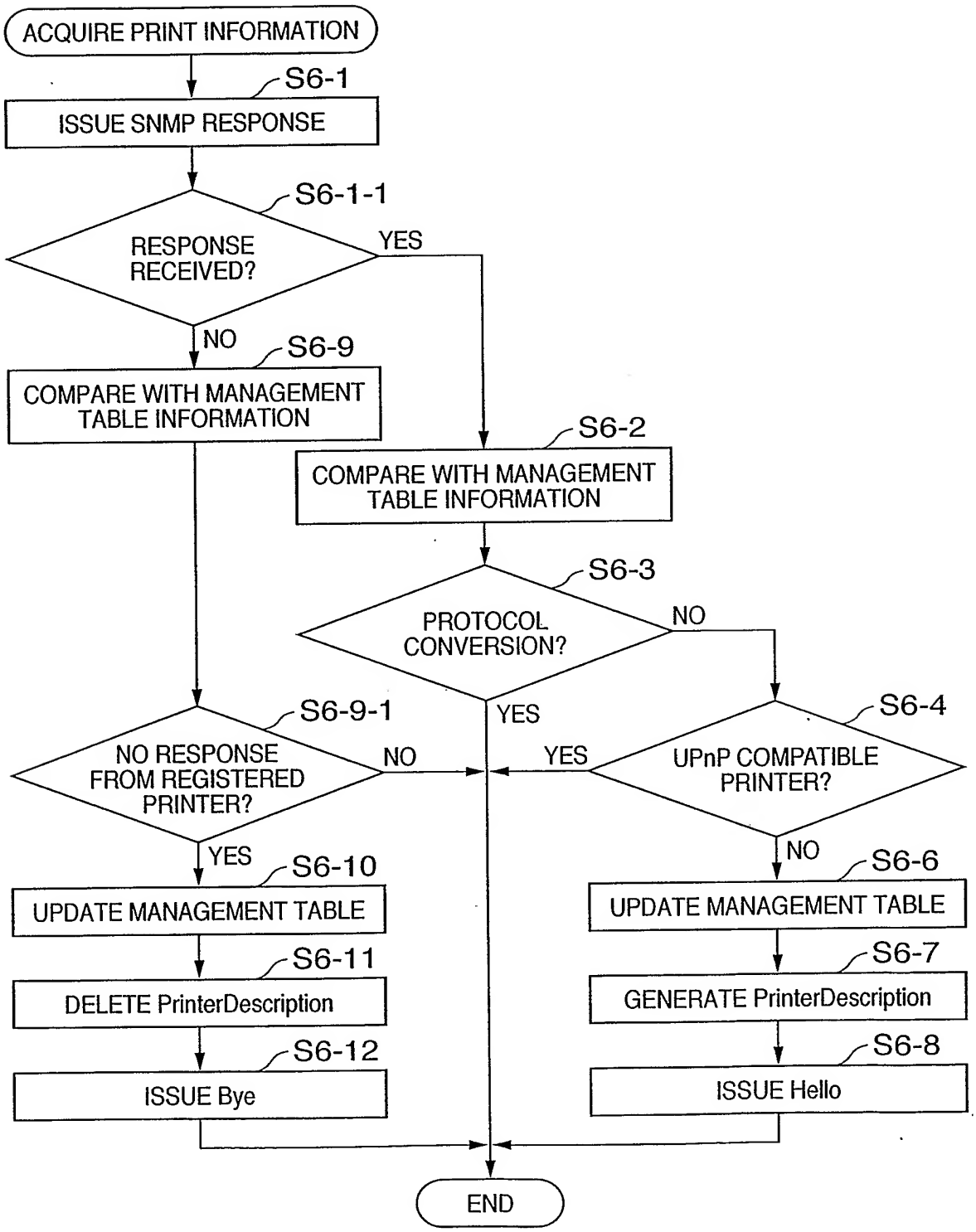

ACQUIRE PRINT INFORMATION
S6-1
ISSUE SNMP RESPONSE
S6-1-1
RESPONSE RECEIVED?
YES
NO
S6-9
COMPARE WITH MANAGEMENT TABLE INFORMATION
S6-2
COMPARE WITH MANAGEMENT TABLE INFORMATION
S6-3
PROTOCOL CONVERSION?
NO
YES
S6-9-1
NO RESPONSE FROM REGISTERED PRINTER?
NO
YES
S6-4
UPnP COMPATIBLE PRINTER?
YES
S6-10
UPDATE MANAGEMENT TABLE
S6-11
DELETE PrinterDescription
S6-12
ISSUE Bye
NO
S6-6
UPDATE MANAGEMENT TABLE
S6-7
GENERATE PrinterDescription
S6-8
ISSUE Hello
END

FIG. 7

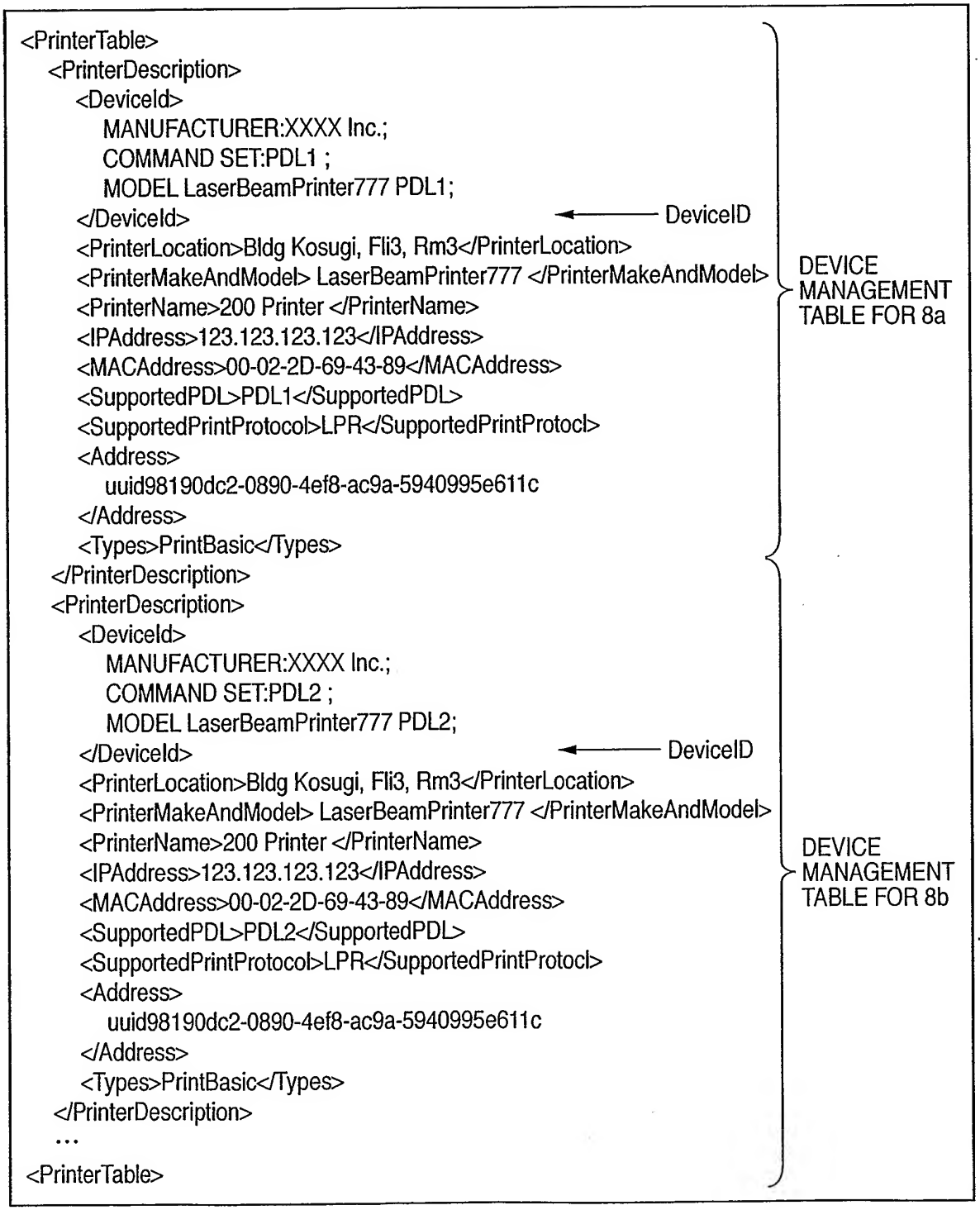

<PrinterTable>
<PrinterDescription>
<DeviceId>
MANUFACTURER:XXXX Inc.;
COMMAND SET:PDL1 ;
MODEL LaserBeamPrinter777 PDL1;
</DeviceId>
DeviceID
<PrinterLocation>Bldg Kosugi, Fli3, Rm3</PrinterLocation>
<PrinterMakeAndModel> LaserBeamPrinter777 </PrinterMakeAndModel>
<PrinterName>200 Printer </PrinterName>
<IPAddress>123.123.123.123</IPAddress>
<MACAddress>00-02-2D-69-43-89</MACAddress>
<SupportedPDL>PDL1</SupportedPDL>
<SupportedPrintProtocol>LPR</SupportedPrintProtocl>
<Address>
uuid98190dc2-0890-4ef8-ac9a-5940995e611c
</Address>
<Types>PrintBasic</Types>
DEVICE MANAGEMENT TABLE FOR 8a
</PrinterDescription>
<PrinterDescription>
<DeviceId>
MANUFACTURER:XXXX Inc.;
COMMAND SET:PDL2 ;
MODEL LaserBeamPrinter777 PDL2;
</DeviceId>
DeviceID
<PrinterLocation>Bldg Kosugi, Fli3, Rm3</PrinterLocation>
<PrinterMakeAndModel> LaserBeamPrinter777 </PrinterMakeAndModel>
<PrinterName>200 Printer </PrinterName>
<IPAddress>123.123.123.123</IPAddress>
<MACAddress>00-02-2D-69-43-89</MACAddress>
<SupportedPDL>PDL2</SupportedPDL>
<SupportedPrintProtocol>LPR</SupportedPrintProtocl>
<Address>
uuid98190dc2-0890-4ef8-ac9a-5940995e611c
</Address>
<Types>PrintBasic</Types>
DEVICE MANAGEMENT TABLE FOR 8b
</PrinterDescription>
...
<PrinterTable>

FIG. 8

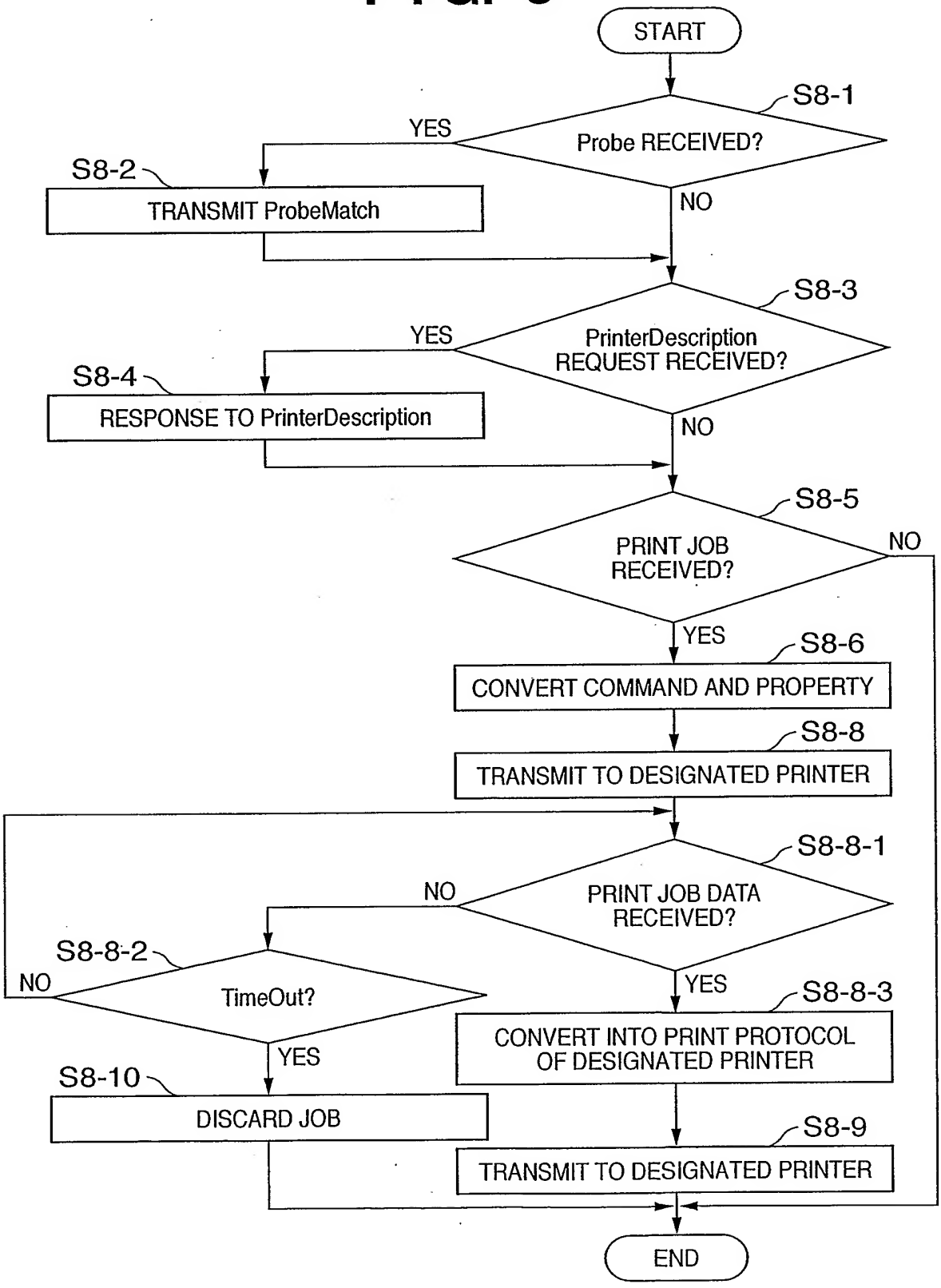

START
S8-1
Probe RECEIVED?
YES
NO
S8-2
TRANSMIT ProbeMatch
S8-3
PrinterDescription REQUEST RECEIVED?
YES
NO
S8-4
RESPONSE TO PrinterDescription
S8-5
PRINT JOB RECEIVED?
NO
YES
S8-6
CONVERT COMMAND AND PROPERTY
S8-8
TRANSMIT TO DESIGNATED PRINTER
S8-8-1
PRINT JOB DATA RECEIVED?
NO
YES
S8-8-2
TimeOut?
NO
YES
S8-8-3
CONVERT INTO PRINT PROTOCOL OF DESIGNATED PRINTER
S8-10
DISCARD JOB
S8-9
TRANSMIT TO DESIGNATED PRINTER
END

FIG. 9

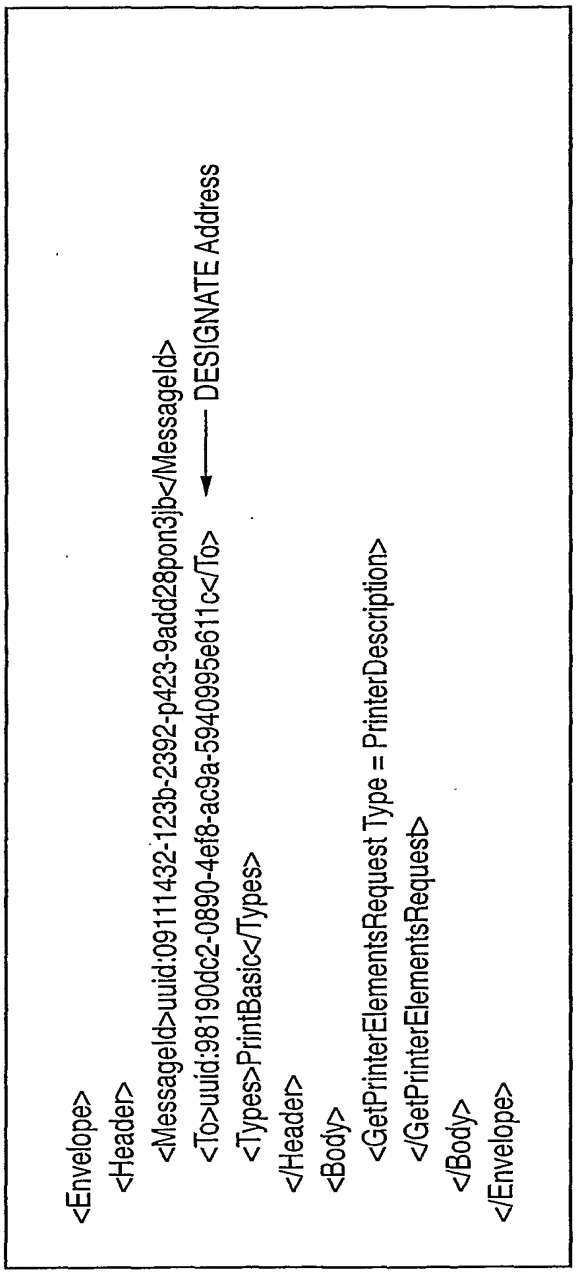

<Envelope>
<Header>
<MessageId>uuid:09111432-123b-2392-p423-9add28pon3jb</MessageId>
<To>uuid:98190dc2-0890-4ef8-ac9a-5940995e611c</To>
DESIGNATE Address
<Types>PrintBasic</Types>
</Header>
<Body>
<GetPrinterElementsRequest Type = PrinterDescription>
</GetPrinterElementsRequest>
</Body>
</Envelope>

FIG. 10

```
<Envelope>
  <Header>
    <MessageId>uuid:09111432-123b-2392-p423-9add28pon3jb</MessageId>
    <ResponseTo>uuid:09111432-123b-5555-c787-2san15pip5ec</ResponseTo>
  </Header>
  <Body>
    <GetPrinterElementsResponse Type = PrinterDescription>
      <DeviceId>
        MANUFACTURER:XXXX inc.;
        COMMAND SET:PDL1;
        MODEL:LaserBeamPrinter777 PDL1
      </DeviceId>
      <PrinterLocation>Bldg Kosugi, Flr3, Rm3</PrinterLocation>
      <PrinterMakeAndModel>LaserBeamPrinter777</PrinterMakeAndModel>
      <PrinterName>200 Printer</PrinterName>
    </GetPrinterElementsResponse>
  </Body>
</Envelope>
```

FIG. 11

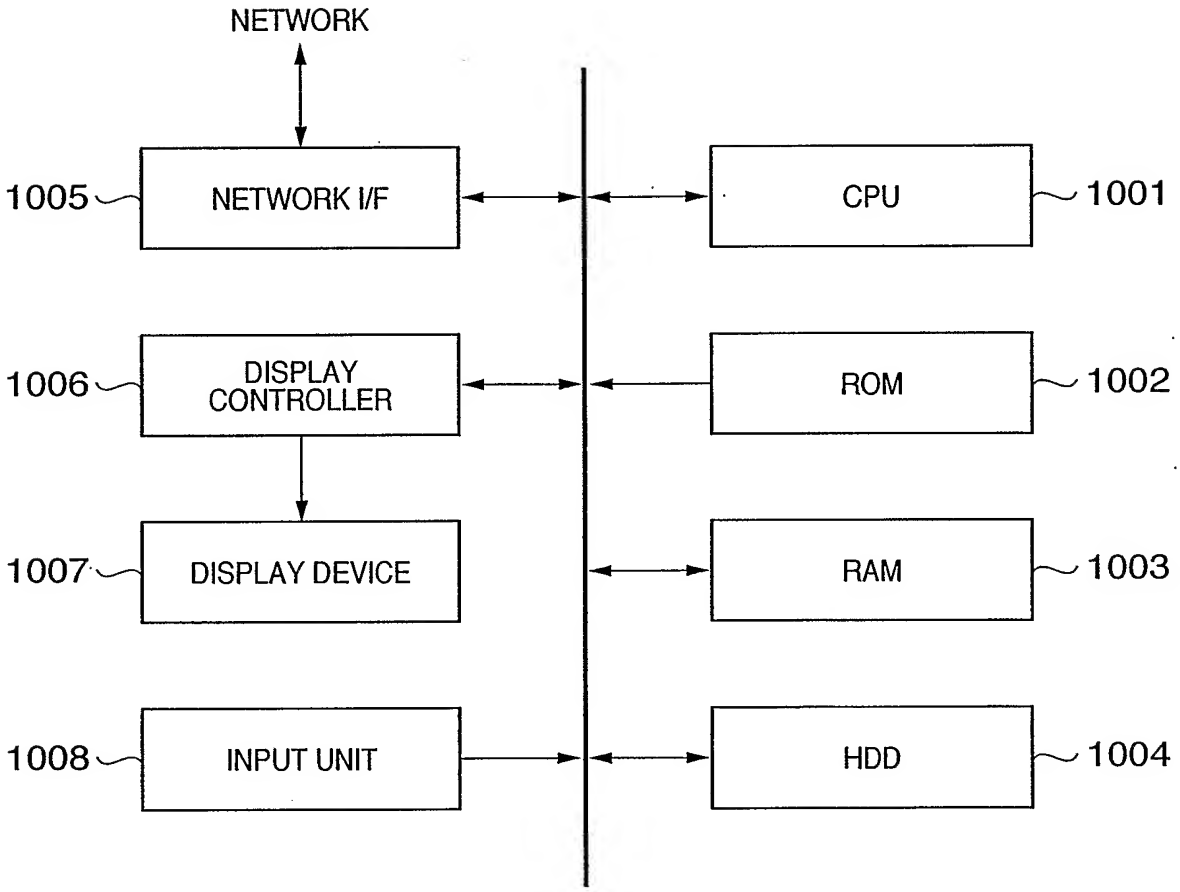
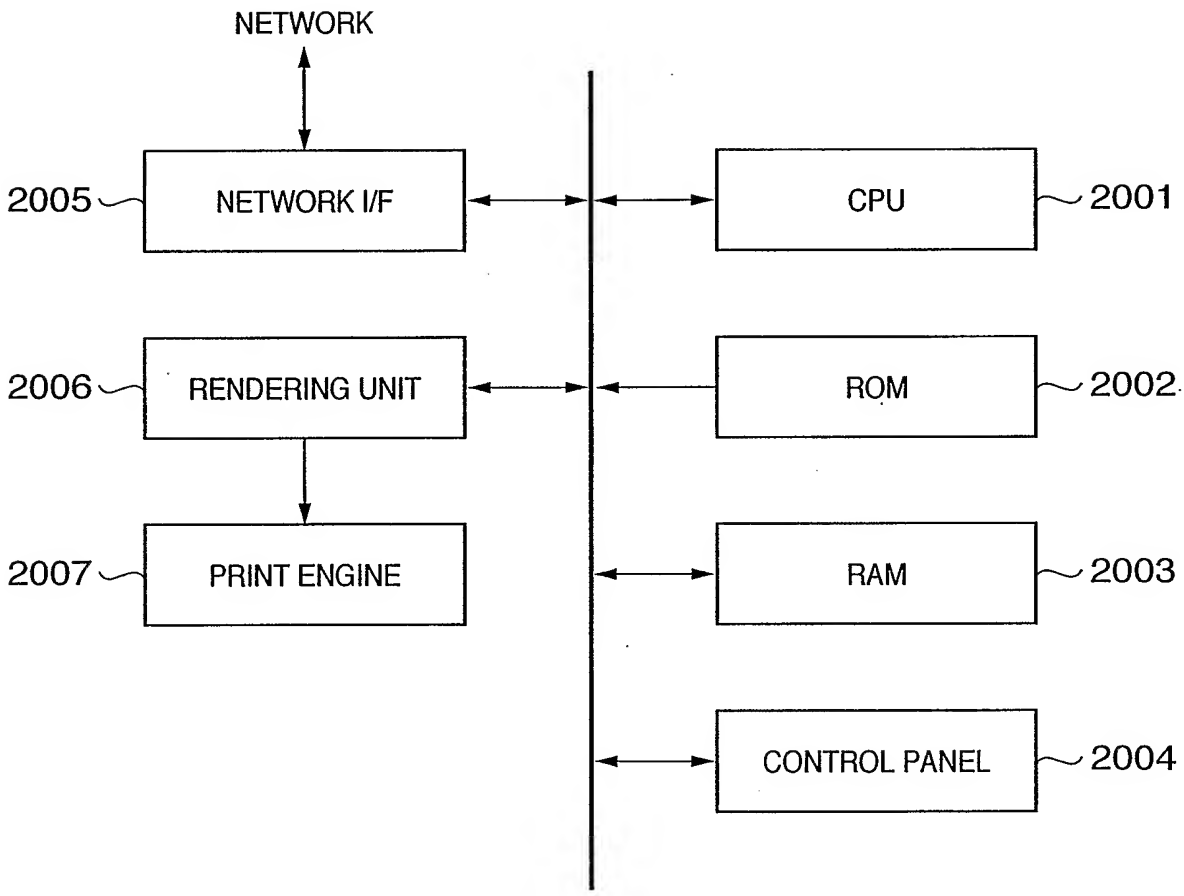

NETWORK
1005
NETWORK I/F
CPU
1001
1006
DISPLAY CONTROLLER
ROM
1002
1007
DISPLAY DEVICE
RAM
1003
1008
INPUT UNIT
HDD
1004

FIG. 12


NETWORK
2005
NETWORK I/F
2006
RENDERING UNIT
2007
PRINT ENGINE
CPU
2001
ROM
2002
RAM
2003
CONTROL PANEL
2004